

Contra Costa County

Fish and Wildlife Committee (FWC)

Date: July 20, 2016

Time: 3:00 p.m.

Location: County Public Works Department Road Maintenance Division lunch room (squad room)
2475 Waterbird Way, Martinez CA 94553
(Map is attached.)

AGENDA

3:00 p.m. Convene meeting.

- 1) Introductions.**
- 2) Review/Approve minutes from the June 15, 2016 meeting.**
- 3) Public comment.** Includes public comment on topics on the agenda and items not listed on the agenda. The FWC shall also accept public comment on agenda items at the time they are discussed.
- 4) Updates and announcements from staff and FWC members.** Includes discussion on implementation of actions authorized previously, on correspondence received, and on upcoming meetings of interest to the FWC.
- 5) Presentation on the “Bees of Brentwood” project. (Dr. Gordon Frankie, University of California, Berkeley)**
- 6) Review and accept the final report from the University of California, Berkeley for their “Bees of Brentwood” project.**
- 7) Review and accept the final report from the Contra Costa County Flood Control & Water Conservation District for their “Contra Costa County Creek and Watershed Symposium” project.**
- 8) Review and accept the final report from Mt. View Sanitary District for their “Equipment Shed for Ongoing Moorhen Marsh Western Pond Turtle Study” project.**
- 9) Review and accept the final report from Mt. View Sanitary District for their “Wetlands Field Trip Program for Contra Costa County Schools” project.**
- 10) Review the letters of thanks from Lindsey Wildlife Experience for their 2015 and 2016 grant awards for their “Investing in Wildlife Rehabilitation” projects.**
- 11) Review and consider finalizing the draft 2016 Fish and Wildlife Committee Fall Forum agenda and discuss the budget, outreach and members’ tasks.**
- 12) Review and discuss the draft 2016 work plan and annual report to the Board of Supervisors.**

13) Determine the agenda for the next meeting. The next regular meeting date is August 17, 2016. Possible agenda items for upcoming meetings include:

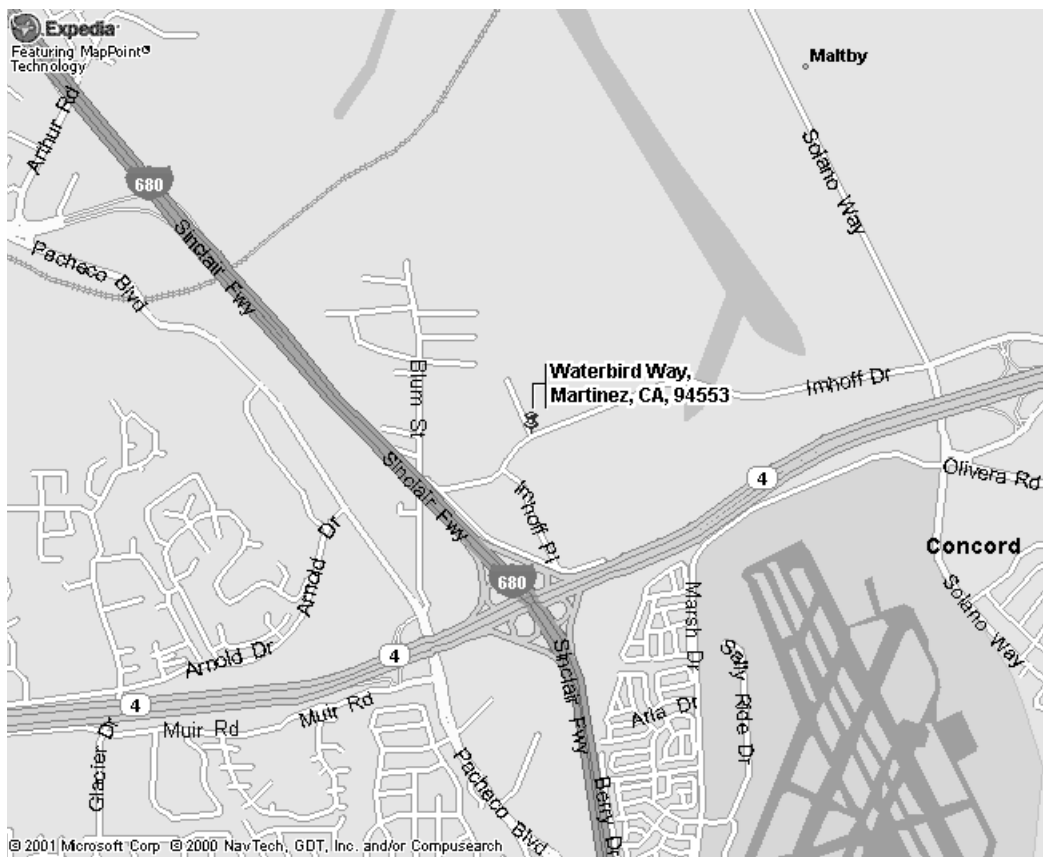
- Review draft Fish and Wildlife Propagation Fund Grant RFP - August
- River Otter Ecology Project Presentation – August
- Animal Services Department Presentation - August
- Field trip to Ruth Bancroft Garden in Walnut Creek - October
- CCC Integrated Pest Management Advisory Committee activities update – November
- Pinole Creek Fish Passage Project update
- Chelsea Wetlands Project update

Adjourn

The Committee Chair may alter the order of agenda items at the meeting.

Please contact Maureen Parkes at 925-674-7831 / maureen.parkes@dcd.cccounty.us (or Abigail Fateman at 925-674-7820 / abigail.fateman@dcd.cccounty.us) at the CCC Department of Conservation and Development if you have questions about the Fish & Wildlife Committee or desire materials related to this agenda. The FWC will provide reasonable accommodation for persons with disabilities planning to participate in this meeting who contact staff at least 72 hours before the meeting.

County Public Works Department Road Maintenance Division lunchroom (squad room)



From Hwy 680:

1. Merge onto CA-4W
2. Continue with the directions from Hwy 4.

From Hwy 4:

1. Take the Pacheco Blvd exit.
2. Merge onto Pacheco Blvd.
3. Turn onto Blum Road (North past Police Department).
4. Turn right onto Imhoff Drive (a cemetery is at the corner of Blum and Imhoff).
5. Turn left onto Waterbird. (There is a Top Soil / Clean Dirt sign at the corner).
6. Turn left onto the Public Works Maintenance building after you pass County's gas pumping station. Once you are in the parking lot, pass the building on your right. Park your car near the side entrance (not the front entrance). Enter through the side entrance.

Our meeting room is on your left once you enter the building. Please ask the receptionist to direct you if you have trouble finding the meeting room.

Draft Meeting Minutes of the Contra Costa County Fish and Wildlife Committee on June 15, 2016

1) Introductions. Clark Dawson, Roni Gehlke, Susan Heckly, Kathleen Jennings, Daniel Pellegrini, Jeff Skinner and Brett Morris attended the meeting. Scott Stephan provided advance notice that he would not be able to attend the meeting. Bob Case (California Invasive Plant Council), Helen Dickson (SPAWNERS), Dawn Manley (Lindsay Wildlife Experience), Jill Ray (Office of Supervisor District II) and Jill Wiseman attended the meeting. Maureen Parkes (CCC Department of Conservation and Development) attended as staff.

2) Review/Approve minutes from the May 18, 2016 meeting. The minutes were approved as written.

Vote: 7-0

AYES: Dawson, Gehlke, Heckly, Jennings, Morris, Pellegrini and Skinner

NOES: None

ABSENT: Stephan

ABSTAIN: None

3) Public comment. There were no public comments.

4) Updates and announcements from staff and FWC members. Includes discussion on implementation of actions authorized previously, on correspondence received, and on upcoming meetings of interest to the FWC.

- Maureen Parkes informed the Committee that Scott Stephan provided advance notice that he would not be able to attend the meeting today.
- Kathleen Jennings and Maureen Parkes informed the Committee that they attended a presentation by Megan Isadore, Executive Director, River Otter Ecology Project at Mt. View Sanitary District on Saturday, May 28th. Ms. Isadore offered to give a presentation to the Fish and Wildlife Committee, which staff tentatively scheduled for the August 17th FWC meeting.

5) Presentation on weeds and invasive plants in Contra Costa County. (Bob Case, Contra Costa Resource Conservation District). Bob Case, representing the California Invasive Plant Council (Cal-IPC), spoke regarding the role of Cal-IPC and how invasive plants impact all levels of the food web. He also discussed past and current State and Federal funding and efforts to eradicate invasive plants.

6) Review the letter of thanks from Mt. View Sanitary District for their 2016 Fish and Wildlife Propagation Fund grant award for their “McNabney Marsh Nesting Raft Project”. The Committee reviewed the letter.

7) Review and accept the final report from SPAWNERS on their “Monitoring Water Quality in the San Pablo Creek Watershed” project. The Committee reviewed and accepted the final report.

Vote: 7-0

AYES: Dawson, Gehlke, Heckly, Jennings, Morris, Pellegrini and Skinner

NOES: None

ABSENT: Stephan

ABSTAIN: None

8) Review and accept the final report from Ruth Bancroft Garden on their “Create and Restore Wildlife Habitat at Ruth Bancroft Garden” project. The Committee reviewed and accepted the final report.

Vote: 7-0

AYES: Dawson, Gehlke, Heckly, Jennings, Morris, Pellegrini and Skinner

NOES: None

ABSENT: Stephan

ABSTAIN: None

9) Discuss potential speakers and field trips for upcoming meetings. The Committee discussed potential speakers and upcoming presentations from U.C. Berkeley on their “Bees of Brentwood” project, the Animal Services Department, Contra Costa County Integrated Pest Management Advisory Committee, and the River Otter Ecology Project. Staff will look into inviting representatives from the Chelsea Wetlands and Pinole Creek Fish Passage projects to give updates on their projects. Staff will also look into the possibility of field trips to Ruth Bancroft Garden and the Pinole Creek Fish Passage site.

10) Determine the agenda for the next meeting. The next regular meeting date is July 20, 2016.
Possible agenda items for upcoming meetings include:

- Discuss preparations for the Fall Forum
- Review draft Fish and Wildlife Propagation Fund RFP
- Review draft 2016 Annual Report/Work Plan

Adjourn

Bees of Brentwood

Final Report

In 2011, with the generous support of the Fish and Wildlife Committee Propagation Fund, the UC Berkeley Urban Bee Lab launched an innovative, farmer-initiated project, *Farming for Native Bees*. In 2014, funding was renewed to survey select natural, urban and agricultural areas to identify: key nesting and foraging sites; additional bee species that could be drawn to and sustained by constructed habitats; and new bee-attractive native and ornamental host plants that have not yet been tested in our farm and urban habitat gardens. Project objectives were:

1. Public education through hands-on workshops and presentations, printed and online educational materials, and a native bee field guide
2. Improvement of fish and wildlife habitat by constructing habitats that will protect California's native bees
3. Scientific fish and wildlife research, by monitoring native bee populations across diverse natural and constructed landscapes in Brentwood, Contra Costa County

1. Public Education

Farming's outreach campaign continues to be a highlight of our work, reaching a broad public with our innovative and important research results. In 2015, we reached almost 10,000 people across California through 34 presentations and garden tours, 11 hands-on workshops, 9 major conferences and 7 informational exhibits. Interviews with Dr. Gordon Frankie were twice featured in KZYX (Ecology Hour and Pledge Drive Event), and we were invited to promote our book, *California Bees and Blooms* at 6 author events (see attached presentation list).

Our *Technology Diffusion Modules*, a set of video presentations that guides viewers in designing and installing their own native bee habitats, were pre-screened at the Organic Agriculture and Research Symposium and the California Small Farms Conference, where we co-presented with our partnering Brentwood farmer Al Courchesne, Jessa Cruz (Xerces Society), and Rachel Freeman Long (UC Cooperative Extension). They were very well received – attendees were thrilled, and wanted to be notified when the Modules become available.

Membership to our online newsletter continues to grow – we now have almost 1,000 subscribers who receive project information on a bi-monthly basis. Our findings are also disseminated via our Facebook page to over 1,000 members. We are in the process of developing a contract with the University of California, Division of Agriculture and Natural Resources to publish our flip booklet field guide for common native bees species. The peer-reviewed publication will consist of a set of 45 beautiful, full color identification cards. Our work in Ventura, which replicates the Brentwood project, has also been featured in *The Grove*, a publication of the California Avocado Commission (see attached). Hard copies reach some 4,000 subscribers (3,500 farmers, and 500 agency and other stakeholders). The publication is freely available on their website (see <http://www.californiaavocadogrowers.com/publications/from-the-grove>).

2. Habitat Improvements

Habitat Development

Habitat development continues to be a dynamic feature of the project as we experiment with new ornamentals and farming operations shift. Over the past year, we added bee plants for target bee species for specific crops at Dwelley and Frog Hollow Farms. These included:

Dwelley Farm

Plant types: *Erigeron glaucus*, *Perovskia atriplicifolia*, *Salvia 'Dara's Choice'*

Target bees: *Ceratina*, *Bombus*, *Halictus*

Notes: These bees are target species for berry crops. Our objective in enhancing habitat with their preferred flower types is to increase and sustain on-farm populations throughout the year.

Frog Hollow

Plant types: *Mahonia nevinii*, *Arctostaphylos*, *Lupinus*, *Heteromeles arbutifolia*, *Salvia leucophylla*

Target bees: *Andrena*, *Osmia*

Notes: Our objective is to increase populations of these bee species, which are regular crop flower visitors at other farms, especially cherries.

Key Lesson: This spring season has been marked by strange weather patterns – many crops flowered and ripened early, and rain fell during key pollination times. It will be imperative to continue monitoring bee populations, and their emergence relative to crop flowering, over the next few years as weather patterns shift in response to climate change.

Nesting

Understanding nesting habits of target crop pollinators, surveying surrounding areas for potential nesting sites, and evaluating different types of on-farm nesting materials (both naturally occurring and introduced) has emerged as an important subproject of the overall *Farming for Native Bees* study. Providing nesting habitat is a key recommendation in most guides and manuals, yet, as far as we know, very little research has been conducted on the impacts of providing nesting habitat for wild bee populations. Anecdotal evidence offers mixed results: some “bee condos” – a popular nesting structure recommended by many manuals – are full of bees, while others remain vacant. There are a number of factors that might contribute to their success, but these have not been studied. Nesting habitat may also be critical to the successful introduction of specialty native bees, such as the blue orchard bee.

Nesting blocks installed in 2014 at various locations at Frog Hollow Farm seem to indicate the value of native bee habitat for drawing in native bees, and the importance of installing these habitats in relatively close proximity to target crops. Nesting blocks installed along Frog Hollow Farm’s orchards and native bee habitats were very successful in attracting diverse *Megachile* species. Those species that produce multiple generations per year have already emerged; others that produce only one generation seem to be holding over for next year.

Nesting blocks installed further from native bee habitats, by contrast, had few occupants. This was also the case at Enos and Dwelley Farms, where nesting blocks were further away from the

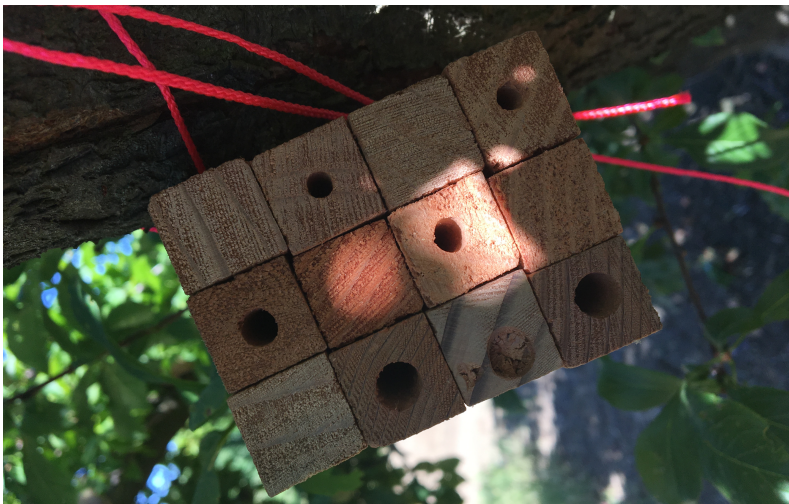
native bee habitats. These blocks did, however, attract high numbers of beneficial wasps, especially at Dwelley.

In 2016, we initiated a standardized trap nest study with the following goals:

- Inventory cavity-nesting bees in agricultural fields
- Document rates of artificial nesting habitat use
- Evaluate nesting habitat placement (e.g. middle of orchard vs. close to installed habitat)
- Document nesting beneficial wasps

Four sites were selected for the study, including:

- Frog Hollow (selected because of previous success with artificial nesting habitat and does not have urban or wild habitat in close proximity)
- Dwelley I (selected because it has the highest species diversity and is surrounded by urban areas)
- Brookside (selected because of high species diversity and proximity to urban and wild habitat; also has known cavity nesting bees, esp. *Osmia lignaria*)
- Wolfe (selected for the same reasons as Brookside)



Six bundles of trap nests were installed in 2 locations on each farm (12 per farm). Each bundle consists of 12 individual trap nests, which are constructed from 1" x 1" x 4.5" redwood stakes with 3/16", 1/4", and 5/16" diameter holes (4 of each per bundle). Nests are checked every 3 weeks for fills, which are then capped with a collecting vial and relocated to

Wolfe farm, where they can be reared without disturbance. These nests are replaced with empty trap nests. Once the bees have been reared out, the nests will be dissected to record the number of cells and resources used in nest construction. Twelve nests have already been occupied and removed for rearing, and have been replaced with fresh nests.

Farm Operations

Patrick Johnston at Dwelley has offered a new location to add bee habitat – a new apple orchard, in which the trees are only one year old. Apples are one of our target crops, and we will be monitoring native bee visits to crop flowers, and experimenting with habitat composition with the objective of developing a prescriptive treatment.

This orchard will replace the Tachella orchard, which has been phased out of the study. The Tachella family sold their farm several years ago, and conditions on the site quickly deteriorated. We have been unable to reach the new owners, and there is now little to no access to the site.

3. Scientific Research

In 2015, we launched a survey of natural, urban and fallowed agricultural areas surrounding our study sites. Objectives included:

1. Measure the diversity and abundance of local wild bee populations.

All collected specimens from 2010-2014 have been identified, resulting in a total of 129 bee species among all of our study sites (see attached comprehensive bee list and list of most common bee species). Data analysis shows that those farms closest to wild and/or urban habitat, including Wolfe, Brookside, and Dwelley I, had the highest abundance and diversity of bees, even during drought years. Specimens collected in 2015-2016 have yet to be identified.

2. Identify bee-attractive plant types present in natural areas.

Principal Investigator Dr. Gordon Frankie and collaborator Dr. Rollin Coville participated in 2 Mt. Diablo BioBlitzs (2015-2016), organized by our partner, Save Mt. Diablo. Additional surveys have been conducted in the Perkins Canyon area on the east side of the Mountain closest to Brentwood agricultural areas, and along Southgate and Northgate Roads up to the summit. Our initial observations are that many of the plants utilized by bees on Mt. Diablo are:

- Already used in our habitat development (e.g. *Salvia mellifera*, CA poppies, *Phacelia*, *Penstemon* spp., *Grindelia* spp., *Heteromeles arbutifolia*, and *Acmispon glaber*)
- Are not consistent attractors (e.g. *Mimulus aurantiacus*, based on 15 years of research)
- Are too sensitive or particular for use in agricultural settings (e.g. *Ranunculus* spp., *Clarkia unguiculata*, and *Eriodictyon californica*)

A comprehensive list of all plant types (ornamental and weedy/wildflower) with measurable attractiveness in the Brentwood area (agricultural, natural and urban) is attached for your review.

3. Measure impacts of fires and urban developments on local wild bee populations.

The impacts of fire in Mt. Diablo have been difficult to measure with the ongoing drought. However, a great many plant resources have been documented in urban areas. Large public spaces (e.g., along walkways in suburban developments) are planted with pollinator-friendly plants, such as *Phacelia* spp., *Lasthenia* spp., CA poppies, *Achillea millefolium*, and *Clarkia unguiculata*.

Natural and urban areas adjacent to Wolfe and Brookside Farms (within 500 feet) have large perennial bee-attractive plants, providing dead wood for cavity-nesting bees. These plants include: *Salvia brandegeei*, *Lavandula stoechas*, *Eriogonum fasciculatum*, *Rosemarinus officinalis*, *Heteromeles arbutifolia*, and *Baccharis pilularis*. Surveys in spring yielded high activity and diversity on these perennial plants.

A map of wild bee “hotspots” is still in the works, and will be completed when the survey is finished. It will be used to strategically protect existing and plan for the development of new wild bee habitats that support crop pollination.

AWARD ALLOCATION

| Expense | Requested Amount | Award Allocation |
|--|-----------------------------|-----------------------------|
| <i>Native Bee Habitat Development</i> | | |
| Plants and Seeds | \$4,000 | \$5,158 |
| Irrigation Systems | \$1,500 | \$342 |
| Bee Nesting Boxes | \$2,000 | \$2,000 |
| <i>Educational Materials</i> | \$1,000 | \$1,000 |
| <i>Indirect Cost (at UCB's off-campus rate of 26%)</i> | \$2,210 | \$0 |
| Total: | \$10,710 | \$8,500 |

Contra Costa Co. Fish and Wildlife Propagation Fund
A Survey of Native Bees in Brentwood's Diverse Landscapes
P.I. Dr. Gordon Frankie
Project Years: 2015-2016
Expense Reporting

| Date of Purchase | Vendor | Description | Amount |
|-------------------------|-----------------------------------|---|---------------|
| 4/17/15 | Green Thumb International | Fertilizer | 74.95 |
| 4/17/15 | Green Thumb International | Drip irrigation materials | 25.78 |
| 4/27/15 | Perez Nursery | Plants | 92.03 |
| 5/13/15 | Perez Nursery | Plants | 141.09 |
| 5/16/15 | Green Thumb International | Drip irrigation materials | 126.65 |
| 6/17/15 | ACE Hardware | Nesting habitat construction materials and tools | 45.72 |
| 6/18/15 | ACE Hardware | Nesting habitat construction materials and tools | 95.32 |
| 6/18/15 | ACE Hardware | Nesting habitat structures | 116.58 |
| 6/20/15 | ACE Hardware | Plants | 83.33 |
| 6/22/15 | ACE Hardware | Nesting habitat construction materials | 23.83 |
| 7/9/15 | ACE Hardware | Habitat development supplies--drip irrigation materials and habitat maintenance tools | 63.97 |
| 7/25/15 | ACE Hardware | Drip irrigation materials | 28.19 |
| 7/25/15 | ACE Hardware | Drip irrigation materials | 156.14 |
| 8/21/15 | All Around Landscape Supply | Drip irrigation materials | 85.86 |
| 8/23/15 | Berkeley Horticultural Nursery | Plants | 154.00 |
| 9/10/15 | Big B Lumber | Drip irrigation materials | 18.41 |
| 9/18/15 | Arboretum Nursery | Plants | 102.34 |
| 9/18/15 | Berkeley Horticultural Nursery | Plants | 248.16 |
| 9/23/15 | The Garden Company | Fertilizer | 108.72 |
| 9/23/15 | Native Revival Nursery | Plants | 257.27 |
| 9/26/15 | Devil Mt. Nursery | Plants | 193.35 |
| 10/2/15 | Devil Mt. Nursery | Plants | 502.57 |
| 10/1/15 | Vista Print | Printed outreach materials | 87.56 |
| 10/14/15 | UC Berkeley GIS Printing Facility | Printed outreach materials | 126.17 |
| 11/1/15 | The Watershed Nursery | Plants | 246.38 |
| 11/4/15 | Fedex | Printed outreach materials | 71.45 |
| 11/15/15 | The Watershed Nursery | Plants | 246.38 |
| 11/15/15 | Mostly Natives Nursery | Plants | 117.18 |

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|------------------------------------|--|----------------|
| 11/21/15 Mostly Natives Nursery | Plants | 148.2 |
| 12/5/15 Oaktown Nursery | Plants | 30.86 |
| 12/7/15 Fedex | Printing flip booklet of common CA native bees | 786.27 |
| 12/26/15 Westbrae Nursery | Gopher baskets for habitat development | 71.1 |
| 12/27/15 Westbrae Nursery | Gopher baskets for habitat development | 63.4 |
| 12/29/15 Green Thumb International | Habitat maintenance tools | 51.56 |
| 1/2/16 Mostly Natives Nursery | Plants | 325.5 |
| 1/4/16 Devil Mt. Nursery | Plants | 421.85 |
| 1/7/16 Leballister's Seed | CA native wildflower seeds | 281.45 |
| 1/8/16 Leballister's Seed | CA native wildflower seeds | 23.82 |
| 1/9/16 Westbrae Nursery | Plants | 41.02 |
| 1/9/16 Westbrae Nursery | Gopher baskets for habitat development | 43.76 |
| 1/9/16 The Watershed Nursery | Plants | 43.37 |
| 1/11/16 Farm Supply Company | Fertilizer and plants | 66.9 |
| 1/12/16 Green Thumb International | Plants | 235.22 |
| 1/13/16 ACE Hardware | Plants and drip irrigation materials | 84.1 |
| 2/4/16 Devil Mt. Nursery | Plants | 403.57 |
| 3/4/16 Truitt & White | Nesting habitat materials--trap nests | 355.81 |
| 3/30/16 Home Depot | Nesting habitat tools--miter saw | 181.16 |
| 4/6/16 Home Depot | Nesting habitat tools--drill press | 178.18 |
| 6/24/16 Amazon.com | Nesting habitat--observation nests | 807.4 |
| 6/24/16 Nurturing Nature | Nesting habitat--observation nests | 197.96 |
| Total Expenses: | | 8481.84 |

Presentation List 2015
UC Berkeley Urban Bee Lab

| Date | Name of Group | Name of Event | # of Attend | Type of Attendees |
|-------------|-------------------------------|--|--------------------|--|
| 1/13/-1/14 | CA Native Plant Society | 2015 Conservation Conference: Celebrating 50 Years of Progress and Promise | 134 | Botanists, land managers, agencies, environmental non-profits, academics |
| 1/13-1/14 | CA Native Plant Society | 2015 Conservation Conference: Celebrating 50 Years of Progress and Promise | 1000 | Botanists, land managers, agencies, environmental non-profits, academics |
| 1/22/15 | Contra Costa Public Library | Author Event | 22 | Local community |
| 3/8 - 3/13 | Wildlife Management Institute | 2015 North American Wildlife and Natural Resources Conference | 90 | Federal agencies, scientists |
| 3/8/15 | Frog Hollow Farm | Blossom Walk | 30 | Brentwood community memebers |
| 3/9/15 | Merritt College | Edible Landscape Class Guest Lecture | 35 | College students |
| 3/9/15 | Oaktown 4-H Club | Monthly Meeting | 50 | 4-H members (ages 5-8) and families. Talk & activities. |
| 3/19/15 | East Bay Waldorf School | Bee gardening talk | 8 | Elementary school children |
| 3/24/15 | KZYX - Mendocino Public Radio | Ecology Hour--Science Edition | 2000 | Mendocino/Sonoma Co. |
| 3/25/15 | Pegasus Books | Author Event | 15 | Local community |
| 3/27/15 | Copperfields Books | Author Event | 15 | Local community |
| 4/8/15 | American River Conservancy | CA Naturalist Course | 15 | Students/individuals |
| 4/9/15 | El Cerrito Garden Club | Monthly Meeting | 45 | Gardeners |
| 4/13/15 | San Francisco Botanic Garden | Docent Training | 30 | Docents |
| 4/14/15 | Contra Costa Public Library | Author Event | 7 | Local community |
| 4/18/15 | Milo Baker CNPS Chaper | Oxford Tract Garden Tour | 10 | CNPS members |
| 4/18/15 | East Bay Regional Parks | Sunol Wildflower Festival | 200 | Families with young children |
| 4/19/15 | San Francisco Zoo | Earth Day Event | 200 | Families with young children |
| 4/23/15 | UCB Landscape Architecture | Guest Lecture | 20 | UCB students |
| 5/1/15 | Eastern Sierra Land Trust | Garden Fest | 60 | Local community |
| 5/3/15 | Bringing Back the Natives | Bringing Back the Natives Garden Tour | 400 | Local community |

Presentation List 2015
UC Berkeley Urban Bee Lab

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|----------|--|--|------|---------------------------|
| 5/5/15 | Castro Valley Library | Author Event | 32 | Local community |
| 5/7/15 | Collins Elementary School | General bee talk | 120 | 4th grade students |
| 5/9/15 | Regional Parks Botanic Garden | Gardens All Abuzz: Partnering with Pollinators | 11 | Local community |
| 5/27/15 | Bristlecone CNPS | Guest Lecture | 18 | CNPS members |
| 5/28/15 | Collins Elementary School | Monitoring demonstration | 120 | 4th grade students |
| 6/1/15 | KZYX - Mendocino Public Radio | Pledge Drive Event | 2000 | Mendocino/Sonoma Co. |
| 6/3-6/7 | Jepson Herbarium | California's Native Bees: Biology, Ecology, and Identification | 18 | Interested individuals |
| 6/7/15 | East Bay Regional Parks | 16th Annual Butterfly and Bird Festival | 300 | Local community |
| 6/11/15 | St. Helena Library | Pollinator Talk | 34 | Local community |
| 6/13/15 | Markham Arboretum | Pollinator Week Event | 25 | Botanic garden visitors |
| 6/18/15 | St. Helena Library | Pollinator Talk | 30 | Local community |
| 6/24/15 | Santa Barbara Botanic Garden | Buzz in the Garden Series | 30 | Botanic garden visitors |
| 6/27/15 | CittaSlow | Sonoma Bee Count | 11 | Interested individuals |
| 7/15/15 | Lawrence Hall of Science | Teacher Workshop | 42 | Teachers from all over US |
| 7/16/15 | Santa Clara Co. Master Gardener | Bee Workshop | 122 | Master Gardeners |
| 7/18/15 | Oxford Tract Bee Garden Tour | Garden Tour | 35 | Interested individuals |
| 7/27/15 | NRCS CIG and Soil & Water Conservation Society | 70th Annual SWCS Conference: CIG Showcase | 20 | Agencies, scientists |
| 8/9-8/14 | Ecological Society of America | 2015 Annual Meeting: Celebrating the ESA Centennial | 50 | Scientists |
| 8/10/15 | San Diego Horticultural Society | Monthly Meeting | 300 | Gardeners |
| 8/15/15 | Oxford Tract Bee Garden Tour | Garden Tour | 2 | Local community |
| 9/2/15 | Santa Clara Co. CNPS | Monthly Meeting | 32 | CNPS members |
| 9/17/15 | Shasta Co. CNPS | Monthly Meeting | 25 | CNPS members |
| 9/19/15 | Oxford Tract Bee Garden Tour | Garden Tour | 12 | Local community |
| 9/20/15 | Sonoma Nature | Wine Country Nature and Optics Festival | 400 | Local community |
| 9/20/15 | UC Gill Tract Community Farm | Harvest Festival | 25 | students, local community |

Presentation List 2015
UC Berkeley Urban Bee Lab

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|-------------|--|--|-----|-----------------------------------|
| 10/3/15 | Watsonville Wetlands Watch | Habitat Festival and Native Plant Sale | 40 | Local community |
| 10/5/15 | Happy Valley Garden Club | Monthly Meeting | 35 | Gardeners |
| 10/6/15 | SPAWNERS | Monthly Meeting | 25 | Elementary school children |
| 10/6/15 | UC Agriculture & Natural Resources | 2015 Joint Strategic Initiatives Conference | 35 | Scientists, academics |
| 10/11/15 | Pleasant Hill Instructional Garden | Open House Celebration | 25 | Gardeners |
| 10/12-10/14 | Michigan State and North Carolina State Universities | Protecting Pollinators in Ornamental Landscapes Conference | 175 | Agencies, scientists |
| 10/20/15 | SF Jewish Community Center | Dave Goulson Talk | 150 | Local community |
| 10/20-10/22 | Pollinator Partnership | 2015 Annual NAPPC Conference | 100 | Non-profits, scientists, agencies |
| 10/24/15 | Bay Area Science Festival | North Bay Science Discovery Day | 300 | Families with young children |
| 10/26/15 | Prescott Elementary School | Classroom Visit | 23 | Children (4-5 years) |
| 10/27/15 | Sierra Academy of Expeditionary Learning | General bee talk | 50 | 10th graders |
| 11/6/15 | Women Food and Agricultural Network | Annual Conference: Women Protecting Pollinators, Protecting Food | 40 | Iowa women landowners and farmers |
| 11/17/15 | Berkeley Garden Club | Nov. General Meeting | 50 | Gardeners |
| 11/20/15 | UCB College of Natural Resources | Fall 2015 Poster Session | 30 | Students, faculty, staff |
| 12/10/15 | Save Mt. Diablo | Speaker Colloquium | 30 | Members |
| 12/11/15 | Essig Museum of Entomology | Essig Brunch | 30 | Faculty |

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|----------------------------------|
| Total Tabling/Exhibits: 7 |
| Total Conferences: 9 |
| Total Talks: 23 |
| Total Garden Tours: 11 |
| Total Workshops: 5 |
| Total Radio Shows: 2 |
| Total Author Events: 6 |

Total Attendees: 9338

Total Presentations: 61

Better Growing



The native California Sweat Bee (Halictus ligatus). Photo by Dr. Rollin Coville.



A native California female Ultra Green Sweat Bee (Agapostomen texanus). Photo by Dr. Rollin Coville.

Native Bees in the Avocado Orchards

New Research Studies the Potential of Native Bees as Key Avocado Pollinators

By Mary Schindler, Dr. Gordon W. Frankie, Sara Leon Guerrero, Jaime Pawelek, Dr. Robbin Thorp, Dr. Rollin Coville, Dr. Ben Faber, Chris Jadallah, Marylee Guinon

Everybody has heard about the drastic decline of honey bees. In recent years, it has been making headlines across the United States and Europe. This decline is of grave concern to avocado growers, as avocados depend on bees for their reproduction. The University of California (UC) Berkeley Urban Bee Lab has begun a new study in Southern California avocado orchards to determine if California native bees can be a cost-effective supplement to honey bee pollination in the event that honey bees continue to decline.

It all started with news in 2007 of Colony Collapse Disorder, a strange Pied Piper phenomenon in which large numbers of bees

abandon their hives without a trace. Pesticides, poor nutrition, parasites and stress may be part of the lethal combination of factors that are causing the problem, but scientists are still stumped. Meanwhile, honey bee populations continue to decline by 30 percent per year.

This is bad news for avocado farmers. Avocados are among the many specialty crops that rely almost entirely on bee pollination to produce healthy, high quality fruit. In the short term, failing honey bee colonies mean increasing costs to import and/or manage honey bee hives.

The truth is that these costs have been gradually increasing for years, and farmers have thus far been

able to take these increases in stride. However, the future of avocado farming is pretty dim if honey bee populations continue to decline. Without bee pollination, crops fail. Period. Given the fact that researchers are still working to understand honey bee decline, a viable solution to this growing problem is anything but guaranteed.

Many creative and innovative people have attempted to devise solutions for this grim future scenario. Some farmers have tried hand-pollination, or even spraying their fields with pollen from helicopters. These kinds of solutions might prevent all-out crop failure in the event that honey bees vanish completely (although



Newly installed native bee habitat at the Jim-Lloyd Butler Ranch in Saticoy.

most have not been thoroughly tested for effectiveness), but high costs make them inaccessible to most farmers.

With 1,600 bee species native to California, it seems as though native bees would be the obvious solution to the honey bee crisis, not just for fruit trees, but for many different kinds of crops. Scientists have begun evaluating the ability of other bee species to get the job done in an efficient, cost-effective manner. This idea is nothing new. The Blue Orchard Bee (BOB) has been used successfully for years to pollinate fruit trees.

Research is demonstrating that many native species are actually more effective pollinators than honey bees. When wild bees are diverse and abundant, they enhance the pollination efficiency of honey bees, provide services that honey bees are not adequately delivering, improve productivity of self-fertilizing crops that are not typically managed for pollination and can even substitute managed honey bees (Garibaldi et al. 2013). In fact, researchers estimate that 35-39 percent of the pollination services required by California crops, equivalent to \$2 billion annually, already are provided by native bees visiting from nearby wild areas (Chaplin-Kramer, et al 2011).

You might wonder, then, why the use of native bees as crop pollinators is not widespread in California agriculture. The main reasons may simply be that farmers have been

using honey bees for decades, have long-standing relationships with beekeepers, and have structures and systems in place to manage crop pollination. Since native bees differ substantially from honey bees in their life cycles and habits, managing for them requires adopting new practices and systems, many of which are still being developed.

For example, while honey bees may not be the most efficient pollinators, they are *generalists*, which means they will visit just about any flower that offers nectar and/or pollen rewards. Native bees range widely in shape, size and structure — many are literally built to collect resources from specific flower types. Honey bees are also on the wing year round, while many native bee species have shorter life cycles and are only present during certain months of the year.

Another important difference is that honey bees are *social* and live in hives that can be transported easily, while most native bees are *solitary*, building individual nests in the ground or in cavities, such as holes in trees, fence posts and pithy stems. Transported from one crop/farm/state to the next, honey bees can get their pollen and nectar needs met throughout the year (although scientists are now finding that this kind of “crop-hopping” puts tremendous stress on honey bee colonies, and may be contributing to their decline).

Native bees, on the other hand, must be supplied with enough floral resources to sustain them throughout their lifecycle, which is often longer than the flowering period of any one particular crop. Hedgerows and wild flower mixes have been offered as one solution to this management issue. But more work needs to be done to determine how effective these habitats are, and whether they can bring in the right kinds of bees in large enough quantities to supplement or replace honey bee pollinators.

This is exactly what the UC

Berkeley Urban Bee Lab is working on in Southern California avocado orchards: identifying the best bee pollinators for avocados and then building habitats that work specifically to attract them. This work is based on 15 years of research on ornamental flowering plants throughout California. We have recorded more than 400 species of native bees visiting flowers in developed landscapes and 500 bee-attractive plants.

This work has helped us determine what bee species are emerging when, and to what flowers they are most attracted. We are now applying this knowledge on three farms in Ventura and Santa Barbara Counties, comparing “treatment” sites in which we have installed high quality bee-attractive habitats with “control” sites to identify target bee pollinators for avocados. Each farm is different, with a unique approach to management, and we are working closely with farmers to understand how native bee habitats can best be integrated into their operations. Our goal is to develop a prescriptive treatment that will allow interested farmers to build their own habitats in a way that best fits their farm.

It can be hard to change your approach and try something totally new when the current system seems to be working. And for many farms, honey bee decline hasn’t reached the point where it feels like a threat. But there are numerous reasons to consider integrating native bees into your production system. Research has found that native bee pollination actually improves quality of product and some researchers have called native bees a good “insurance policy” against honey bee decline. Finally, it makes sense to plan ahead before a crisis hits to ensure you have time to integrate new systems at your own pace.

To learn more about the Urban Bee Lab’s research, please visit www.helpabee.org. 🍌

Brentwood Bee Species
Comprehensive Species List
Total Species: 129

ANDRENIDAE = 18 spp.

Andrena angustitarsata
Andrena auricoma
Andrena candida
Andrena cercocarp
Andrena chlorogaster
Andrena chlorosoma
Andrena cuneilabris
Andrena knuthiana
Andrena miserabilis
Andrena misella
Andrena nigrocaerulea
Andrena piperi
Andrena prunorum
Andrena sola
Andrena subchalybea
Andrena submoesta
Andrena suavis
Andrena w-scripta

APIDAE = 39 spp.

Anthophora curta
Anthophora edwardsii
Anthophora urbana
Apis mellifera
Bombus californicus
Bombus crotchii
Bombus melanopygus
Bombus vosnesenskii
Ceratina acantha
Ceratina arizonensis
Ceratina dallatorreana
Ceratina nanula
Diadasia bituberculata
Diadasia consociata
Diadasia enavata
Diadasia rinconis
Eucera actiosa
Eucera amsinckiae
Eucera edwardsii
Habropoda depressa
Habropoda miserabilis
Habropoda tristissima
Melecta edwardsii
Melissodes agilis
Melissodes lupina
Melissodes robustior
Melissodes tepida timberlakei
Nomada sp. 2
Nomada sp. 4
Nomada sp.
Nomada spp.
Peponapis pruinosa
Svastra obliqua expurgata
Triepeolus concavus
Triepeolus subnitens
Triepeolus sp. DF-1
Xeromelecta californica
Xylocopa tabaniformis orpifex
Xylocopa varipuncta
Zacoscma maculata

COLLETIDAE = 5 spp.

Colletes fulgidus
Hylaeus leptocephalus
Hylaeus calvus
Hylaeus mesillae
Hylaeus rubeckiae

HALICTIDAE = 29 spp.

Agapostemon texanus
 Dieunomia nevadensis
 Duffourea GWF-WF
 Halictus ligatus
 Halictus rubicundus
 Halictus tripartitus
 Lasioglossum incompletum
 Lasioglossum kincaidii
 Lasioglossum mellipes
 Lasioglossum sisymbrii
 Lasioglossum tegulariforme
 Lasioglossum titusi
 Lasioglossum (Dialictus) sp. AA
 Lasioglossum (Dialictus) sp. B
 Lasioglossum spp. (males)
 Lasioglossum (Dialictus) sp. B-1
 Lasioglossum (Dialictus) sp. C
 Lasioglossum (Dialictus) sp. D
 Lasioglossum (Dialictus) sp. D-B
 Lasioglossum (Dialictus) sp. E
 Lasioglossum (Dialictus) sp. F
 Lasioglossum (Evylaeus) sp. E
 Lasioglossum (Evylaeus) sp. E-B
 Lasioglossum (Evylaeus) sp. E-E
 Lasioglossum (Evylaeus) sp. I
 Lasioglossum (Dialictus) sp. I
 Sphecodes sp.
 Sphecodes sp. B
 Sphecodes sp. DF-1
 Sphecodes sp. FHF-F-1
 Sphecodes sp. WF-1

MEGACHILIDAE = 38 spp.

Anthidiellum notatum robertsoni
 Anthidium maculosum
 Anthidium manicatum
 Ashmeadiella aridula astragali
 Ashmeadiella buconis denticulata
 Chelostoma californicum
 Coelioxys apacheorum
 Coelioxys banksi
 Heriades occidentalis
 Hoplitis hypocrita
 Hoplitis producta gracilis
 Megachile angelarum
 Megachile apicalis
 Megachile brevis
 Megachile concinna
 Megachile coquilletti
 Megachile gemula
 Megachile lippiae
 Megachile montivaga
 Megachile onobrychidis
 Megachile perihirta
 Megachile prosopidis
 Megachile rotundata
 Osmia aglaia
 Osmia atrocyanea
 Osmia californica
 Osmia clarescens
 Osmia coloradensis
 Osmia gaudiosa
 Osmia granulosa
 Osmia sp. GW-WF
 Osmia laeta
 Osmia lignaria propinqua
 Osmia nemoris
 Osmia nigrifrons
 Osmia regulina
 Osmia texana
 Osmia sp. (male)
 Protosmia rubifloris
 Stelis montana

Brentwood Bee Species
Common Species List
Total Species: 37

ANDRENIDAE = 3 spp.

Andrena candida
Andrena chlorogaster
Andrena misella

APIDAE = 14 spp.

Anthophora edwardsii
Anthophora urbana
Apis mellifera
Bombus californicus
Bombus melanopygus
Bombus vosnesenskii
Ceratina nanula
Eucera actiosa
Eucera amsinckiae
Melissodes lupina
Melissodes tepida timberlakei
Svastra obliqua expurgata
Peponapis pruinosa
Xylocopa varipuncta

COLLETIDAE = 1 sp.

Hylaeus mesillae

HALICTIDAE = 11 spp.

Agapostemon texanus
Halictus ligatus
Halictus rubicundus
Halictus tripartitus
Lasioglossum incompletum
Lasioglossum tegulariforme
Lasioglossum titusi
Lasioglossum (Dialictus) sp. B
Lasioglossum (Dialictus) sp. C
Lasioglossum (Dialictus) sp. D
Sphecodes sp.

MEGACHILIDAE = 8 spp.

Megachile angelarum
Megachile apicalis
Megachile gemula
Megachile onobrychidis
Megachile prosopidis
Megachile rotundata
Osmia coloradensis
Osmia nemoris

Seasonal Recommend Plant List:
Brentwood

Spring Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|---------------------------------|----------------------|--------------|--------|---------------------|------------------|----------------|-----------------------------------|-------|
| <i>Ceanothus</i> 'Yankee Point' | California Lilac | Rham. | CA | Per | P | C | B, Cer, H | |
| <i>Ceanothus</i> 'Ray Hartman' | California Lilac | Rham. | CA | Per | P | C | B, H | |
| <i>Ceanothus</i> spp. | California Lilac | Rham. | CA | Per | P | B | And, H, Hb, Hy | |
| <i>Gilia capitata</i> | Globe Gilia | Polem. | CA | Ann | P/N | C | B, Cer, H, Hb | |
| <i>Lupinus nanus</i> | Sky Lupine | Fabac. | CA | Ann | N | C | B, E, Osm | |
| <i>Phacelia cicutaria</i> | Caterpillar Phacelia | Borag. | CA | Ann | P/N | A | And, B, E, H, Meg, Osm | |
| <i>Phacelia distans</i> | Distant Phacelia | Borag. | CA | Ann | P/N | C | B, E, Hb | |
| <i>Salvia brandegeei</i> | Brandegee Sage | Lamiac. | CA | Per | N | A+ | And, Ant, B, Cer, Hab, H, Hb, Osm | |
| <i>Salvia mellifera</i> | Black sage | Lamiac. | CA | Per | N | C | B, Cer, Meg | |
| <i>Salvia munzii</i> | Munz's Sage | Lamiac. | CA | Per | N | B | Ant, B, Cer, Hb, Osm | |

Spring/Summer Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|---------------------------------|------------------------|--------------|-----------|---------------------|------------------|----------------|--------------------------------------|-------|
| <i>Achillea millefolium</i> | Common Yarrow | Aster. | CA | Per | P | C | H | |
| <i>Achillea</i> 'Moonshine' | Moonshine Yarrow | Aster. | CA | Per | P | C | H | |
| <i>Coreopsis grandiflora</i> | Largeflowered Tickseed | Aster. | Exotic | Per | P/N | C | Cer, H, Meg | |
| <i>Coreopsis lanceolata</i> | Lanceleaf Coreopsis | Aster. | Exotic | Per | P/N | C | H, Meg | |
| <i>Coreopsis</i> sp. | Tickseed | Aster. | Exotic | Per | P/N | C | H, Osm | |
| <i>Eschscholzia californica</i> | California Poppy | Papaver. | CA | Ann | P | A | B, Cer, E, H, Hb, Hy | |
| <i>Erysimum</i> 'Bowles Mauve' | Wallflower | Brassic. | Exotic | Per | N | A | Ant, B, Cer, Hb, Mel-Sv | |
| <i>Lavandula heterophylla</i> | Sweet Lavender | Lamiac. | Exotic | Per | N | C | Ant, B, Meg, Osm | |
| <i>Lavandula</i> spp. | Lavender | Lamiac. | Exotic | Per | N | A+ | Ant, B, Cer, E, H, Hb, Meg, Mel, Osm | |
| <i>Lavandula stoechas</i> | Spanish Lavender | Lamiac. | Exotic | Per | N | B | Ant, Cer, E, Hab, Hb, Meg, Mel | |
| <i>Nepeta x faassenii</i> | Catmint | Lamiac. | Exotic | Per | N | C | Cer | |
| <i>Phacelia tanacetifolia</i> | Tansy Leafed Phacelia | Borag. | CA | Ann | P/N | A | And, B, E, H, Hb, Osm | |
| <i>Salvia</i> 'Dara's Choice' | Dara's Choice Sage | Lamiac. | CA Hybrid | Per | N | A+ | B, Cer, Hy, Meg, Osm | |
| <i>Salvia leucophylla</i> | San Luis Purple Sage | Lamiac. | CA | Per | N | C | B, H, Hy | |
| <i>Sphaeralcea ambigua</i> | Desert Globemallow | Malvac. | CA | Per | P/N | B | Cer, D, E, H | |

Summer Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|--------------------------------|----------------|--------------|--------|---------------------|------------------|----------------|-------------------|-------|
| <i>Heteromeles arbutifolia</i> | Toyon | Rosac. | CA | Per | P/N | C | B, H, Hb | |
| <i>Monardella villosa</i> | Coyote Mint | Lamiac. | CA | Per | N | C | B | |
| <i>Salvia chamaedryoides</i> | Germander Sage | Lamiac. | Exotic | Per | N | B | Ant, B, Cer, Mel | |

Key to Bee Groups

| | |
|-------------------|---|
| And | Andrenid (Mining Bee) |
| Ant | Anthophorid (Digger Bee) |
| Anthid B | Anthidium (Wool Carder Bee) Bombus (Bumble Bee) |
| Cer Cuckoo | Ceratina (Small Carpenter Bee) Cuckoo Bee |
| D | Diadasia (Digger Bee) |
| E | Eucera (Spring Long-Horned Bee) |
| H | Halictid (Sweat Bee) |
| Hab | Habropoda (Digger Bee) |
| Hb | European Honey Bee |
| Hy | Hylaeus (Masked bee) |
| Meg | Megachilid (Leaf Cutting Bee) |
| Mel-Sv | Melissodes & Svastra (Summer Long-Horned Bee) |
| Osm | Osmia (Mason Bee) |
| Pep | Peponapis pruinosa (Squash Bee) |
| Sm X | Small Megachilid (Small Leaf Cutting Bee) Xylocopa (Carpenter Bee) |

Key to Attractiveness Rating

| | |
|-----------|---------------------------|
| A+ | 20+ bee species collected |
| A | 15+ bee species collected |
| B | 10+ bee species collected |
| C | 5+ bee species collected |

Seasonal Recommend Plant List:
Brentwood

Summer/Fall Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|--|----------------------------------|--------------|--------|---------------------|------------------|----------------|----------------------|-------|
| <i>Eriogonum grande</i> var <i>rubescens</i> | Red Buckwheat | Polygon. | CA | Per | N | C | H | |
| <i>Gaillardia</i> 'Oranges & Lemons' | Blanketflower 'Oranges & Lemons' | Aster. | Exotic | Per | P/N | A | B, H, Mel-Sv | |
| <i>Grindelia camporum</i> | Gumplant | Aster. | CA | Per | P/N | C | H, Mel | |
| <i>Grindelia hirsutula</i> | Gumplant | Aster. | CA | Per | P/N | B | Cer, E, H, Meg | |
| <i>Grindelia stricta</i> | Gumplant | Aster. | CA | Per | P/N | C | H | |
| <i>Helianthus annuus</i> | Sunflower | Aster. | CA | Ann | P/N | C | H, Hb, Mel-Sv | |
| <i>Lavandula x intermedia</i> 'Provence' | French Lavender | Lamiac. | Exotic | Per | N | B | Ant, B, Hb, Meg, Mel | |
| <i>Perovskia atriplicifolia</i> | Russian Sage | Lamiac. | Exotic | Per | N | A | B, Cer, Mel | |
| <i>Solidago velutina</i> ssp. <i>californica</i> | California Goldenrod | Aster. | CA | Per | P/N | C | H, Hb, Hy | |
| <i>Vitex agnus-castus</i> | Chaste Tree | Verben. | Exotic | Per | P/N | C | Ant, B, Meg | |

Agricultural Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|---------------------------|-----------------|--------------|-----------|---------------------|------------------|----------------|-------------------------|-------|
| <i>Citrus</i> sp. | Lemons, Oranges | Rutac. | Exotic | Per | P/N | C | Ant, Cer, H | |
| <i>Coriandrum sativum</i> | Cilantro | Apiac. | Exotic | Ann | P | A | And, H, Hb, Meg | |
| <i>Cucurbitaceae</i> | Squash | Cucurb. | CA/Exotic | Ann | P/N | C | Hb, Meg, Pep | |
| <i>Cynara cardunculus</i> | Cardoon | Aster. | Exotic | Per | P/N | C | B, H, Hb, Meg | |
| <i>Cynara scolymus</i> | Artichoke | Aster. | Exotic | Per | P/N | C | B, H, Hy, Mel-Sv | |
| <i>Eruca sativa</i> | Arugula | Brassic. | Exotic | Ann | P/N | B | And, Ant, B, H, Hb, Mel | |
| <i>Malus</i> sp. | Apple | Rosac. | Exotic | Per | P/N | B | And, B, H, Hb | |
| <i>Mentha</i> sp. | Mint | Lamiac. | Exotic | Per | N | C | H, Hb | |
| <i>Ocimum basilicum</i> | Basil | Lamiac. | Exotic | Per | N | C | Meg | |
| <i>Origanum</i> sp. | Oregano | Lamiac. | Exotic | Per | N | B | Ant, B, Cer, H, Hb | |
| <i>Prunus</i> sp. | Cherries | Aster. | Exotic | Per | P/N | C | And, B, H, Hb | |
| <i>Raphanus</i> sp. | Radish | Brassic. | Exotic | Ann | P/N | B | Ant, B, H, Hb | |
| <i>Rubus</i> sp. | Blackberry | Rosac. | Exotic | Per | P/N | B | B, Cer, H, Hb | |

Weedy Plants

| Scientific Name | Common Name | Plant Family | Origin | Annual or Perennial | Pollen or Nectar | Attractiveness | Main Bee Visitors | Notes |
|---|---------------------|--------------|--------|---------------------|------------------|----------------|-------------------------------------|---|
| <i>Amsinckia menziesii</i> | Fiddleneck | Borag. | CA | Ann | N | A | And, B, E, Hab, Hb, H | Considered an agricultural weed even though native--can be toxic to livestock |
| <i>Brassicaceae</i> (weedy species) | Mustard | Brassic. | Exotic | Ann | P/N | A+ | And, B, Cer, E, H, Hb, Hy, Meg, Mel | Several different species of weedy mustards |
| <i>Centaurea solstitialis</i> | Yellow Star Thistle | Aster. | Exotic | Ann | P/N | C | H, Hb, Meg | |
| <i>Cirsium vulgare</i> | Bull Thistle | Aster. | Exotic | Per | P/N | A | B, Cer, H, Hb, Meg | |
| <i>Convolvulus arvensis</i> | Bindweed | Convol. | Exotic | Per | P/N | B | H, Hb | |
| <i>Hirschfeldia incana</i> | Wild Mustard | Brassic. | Exotic | Per | P/N | C | Cer, H, Hy, Meg | |
| <i>Lotus corniculatus</i> | Bird's Foot Trefoil | Fabac. | Exotic | Ann | N | C | Meg | |
| <i>Malva</i> sp. | Mallow | Malvac. | Exotic | Ann | P/N | C | B, Hb, H | |
| <i>Helminthotheca echioides</i> (syn. <i>Picris echioides</i>) | Bristly Ox-Tongue | Aster. | Exotic | Ann/Per | P/N | B | B, Cer, H, Meg | |
| <i>Sonchus asper</i> | Spiny Sowthistle | Aster. | Exotic | Ann | P/N | C | And, H | |
| <i>Verbesina encelioides</i> | Golden crownbears | Aster. | Exotic | Ann | P/N | B | D, H, Mel | |

Key to Bee Groups

| | |
|----------|--|
| And | Andrenid (Mining Bee) |
| Ant | Anthophorid (Digger Bee) |
| Anthid B | Anthidium (Wool Carder Bee) Bombus (Bumble Bee) |
| Cer | Ceratina (Small Carpenter Bee) |
| Cuckoo | Cuckoo Bee |
| D | Diadasia (Digger Bee) |
| E | Eucera (Spring Long-Horned Bee) |
| H | Halictid (Sweat Bee) |
| Hab | Habropoda (Digger Bee) |
| Hb | European Honey Bee |
| Hy | Hylaeus (Masked bee) |
| Meg | Megachilid (Leaf Cutting Bee) |
| Mel-Sv | Melissodes & Svastra (Summer Long-Horned Bee) |
| Osm | Osmia (Mason Bee) |
| Pep | Peponapis pruinosa (Squash Bee) |
| Sm | Small Megachilid (Small Leaf Cutting Bee) |
| X | Xylocopa (Carpenter Bee) |

Key to Attractiveness Rating

| | |
|----|---------------------------|
| A+ | 20+ bee species collected |
| A | 15+ bee species collected |
| B | 10+ bee species collected |
| C | 5+ bee species collected |



**Contra Costa County
Flood Control**
& Water Conservation District

Julia R. Bueren,
ex officio Chief Engineer
Steve Kowalewski,
Deputy Chief Engineer

June 16, 2016

Daniel Pellegrini, Chair
Contra Costa County Fish & Wildlife Committee
c/o Maureen Parkes, CCC Department of Conservation and Development
30 Muir Road
Martinez, CA 94553-4601

Dear Mr. Pellegrini:

The 5th Quadrennial Contra Costa County Creek and Watershed Symposium was held on December 3, 2015. The event was held at the Pleasant Hill Community Center from 9:00 a.m. to 4:00 p.m. The Creek and Watershed Symposia have a history of bringing people together to learn, inspire, network, and celebrate creek and watershed work in Contra Costa County. The goal for the 2015 Symposium was to bring together concerned citizens, community groups, local governments, and regulatory agencies to work dynamically toward a unified vision of restoring the health of Contra Costa's watersheds.

The Symposium had an attendance of over 350 individuals, who enjoyed the opportunity to network with others working in their field, poster sessions from watershed organizations, 15 speakers on diverse topics ranging from river restoration to the effects of climate change on our local ecosystem, and even presentations on local wildlife from the Lindsay Wildlife Experience museum.

The total budget for the event was \$50,000. With the generous grant of \$3,000, the Contra Costa County Flood Control & Water Conservation District was able to cover a multitude of expenses: the printing costs for banners, brochures, and supplies; refreshments during the morning poster session; a portion of the costs of the meeting room and outreach; and name tags and other paper supplies necessary for the day of the event. Other contributions came from agencies, companies, and nonprofit organizations that sponsored the event. Sponsorships provided a total of \$10,819.00.

The audience was comprised of members from both the public and private sectors, allowing for multiple viewpoints to culminate into learning, networking, problem solving, and ultimately inspiring other attendees. From all the feedback we have received, many considered this the best Symposium yet!

Daniel Pellegrini, Chair
June 16, 2016
Page 2 of 2

We would like to thank you for your continued support of the Quadrennial Contra Costa County Creek and Watershed Symposia.

Sincerely,



Mike Carlson
Assistant Chief Engineer
Contra Costa County Flood Control
& Water Conservation District

MC:ER:cw
G:\fldctl\Watershed Forum\Symposium 2015\2016 Fish and Wildlife Prop Fund Application\Final Grant Submittal\
Fish and Wildlife Grant Project Letter.docx
Enclosures

Final Budget for the 2015 Creek and Watershed Symposium

| Task # | Direct costs to host Symposium | Quantity | Unit Cost | Total Estimated Cost | Amount requested form Fish & Wildlife Committee | Actual Cost | Notes |
|--------|---|-------------------|-------------------|-------------------------------|---|-------------------|--|
| 1 | Emailing service to manage all e-notice (2 mos.) | 2 | \$30.00 | \$60.00 | \$60.00 | \$60.00 | Fish and Wildlife Cmte: \$60 |
| 2 | Develop symposium flyer | 1 | \$1,000.00 | \$1,000.00 | \$0.00 | | in kind support (CCC FCD) |
| 3 | Symposium meeting room | 1 | \$2,402.00 | \$2,402.00 | \$500.00 | \$500.00 | Fish & Wildlife Cmte: \$500, CCC FCD \$1,902 |
| 4 | Lunch, including drink | 300 | \$8.25 | \$2,475.00 | \$0.00 | | participants/attendees |
| 5 | Snacks & refreshments (cost | 300 | \$2.50 | \$750.00 | \$0.00 | | other sponsors/co-sponsors |
| 6 | Coffee Cart | 1 | \$1000.00 | \$1000.00 | \$1000.00 | \$1000.00 | |
| 7 | CCTV | 1 | | | \$0.00 | | other sponsors/co-sponsors |
| 8 | Print symposium meeting | 400 | \$1.75 | \$700.00 | \$700.00 | \$655.90 | Fish and Wildlife Cmte: \$655.90 |
| 9 | Print Symposium Banners | 2 | \$75.00 | \$150.00 | \$150.00 | \$131.20 | Fish and Wildlife Cmte: \$131.20 |
| 10 | Misc. supplies and equipment (name tags, signage, table | | | \$600.00 | \$600.00 | \$652.90 | Fish and Wildlife Cmte: \$652.90 |
| 11 | Contingency | | | \$1,000.00 | \$0.00 | | other sponsors/co-sponsors |
| | Direct costs subtotal | | | \$10,137.00 | \$3,010.00 | \$3,000.00 | |
| | | | | | | | |
| | General symposium | | | | | | |
| 12 | Mike Carlson's symposium-related labor | 42 | \$265.96 | \$11,170.52 | \$0.00 | | in kind (CCC FCD) |
| 13 | Flood Control Staff costs (Elissa Robinson, Dominick Myers, Dan Jordan, and | 85 | \$100.00 | \$8,500.00 | \$0.00 | | in kind (CCC FCD) |
| 14 | Diane Burgis | 400 | \$50.00 | \$20,000.00 | \$0.00 | | CCC FCD |
| 15 | Volunteer symposium-related labor (many, many people will contribute large amounts of | 200 | \$0.00 | \$0.00 | \$0.00 | | in kind (volunteers) |
| | General labor costs subtotal | | | \$39,670.52 | \$0.00 | | |
| | | | | | | | |
| | Total Estimated Costs | | | \$49,807.52 | \$3,010.00 | | |
| | | | | | | | |
| | | | | | | | |
| | Funding Source | Requested? | Confirmed? | Estimated Contribution | | | Notes |
| B | County (Flood Control) | yes | yes | \$35,988.52 | | | |
| D | Other sponsors co-sponsors | yes | yes | \$10,819.00 | | | |
| F | Fish and Wildfie Propagation | yes | yes | \$3,000.00 | | | |
| | Total Estimated Revenues | | | \$49,807.52 | | | |



MT. VIEW SANITARY DISTRICT

3800 ARTHUR ROAD
P.O. BOX 2757
MARTINEZ, CA 94553TEL 925.228.5635
FAX 925.228.7585
WWW.MVSD.ORG

July 12th, 2016

Ms. Maureen Parkes
Contra Costa County Fish & Wildlife Committee
30 Muir Road
Martinez, CA 94553
Email: maureen.parkes@dcd.cccounty.us

RE: Final Report for MVSD's 2015 proposal: "Equipment Shed for the Ongoing Moorhen Marsh Western Pond Turtle Study"

Dear Ms. Parkes,

Please consider this letter and all attachments, along with our sincere appreciation for the Contra Costa Fish and Wildlife Committee's (FWC) generous support, Mt. View Sanitary District's (MVSD) Final Report on the grant proposal project titled: **Equipment Shed for the Ongoing Moorhen Marsh Western Pond Turtle Study**. As promised, all spent funds from the \$1,645 award went towards acquiring an equipment storage shed for the western pond turtle study in Moorhen Marsh.

MVSD spent \$1,310.33 on the Handy Home Majestic 8'x12' wood storage shed, plywood flooring, and laminate roof shingles. Additionally, MVSD spent \$115.50 on miscellaneous hardware and organizational storage units, and \$31.19 for locks and keys. The total amount spent on the storage shed was \$1,457.02. Receipts for all items are attached. The shed was constructed in March 2016 and will be painted prior to October 1st, 2016. I have included a picture of the shed for your reference.

MVSD is extremely grateful to the FWC for its generous support of the Moorhen Marsh Western Pond Turtle Study. If you have any questions regarding this Final Report, please do not hesitate to contact me at kdavidson@mvsd.org or 925-228-5635 x19.

Sincerely,

Kelly Davidson
District Biologist



MT. VIEW SANITARY DISTRICT

3800 ARTHUR ROAD
P.O. BOX 2757
MARTINEZ, CA 94553

TEL 925.228.5635
FAX 925.228.7585
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*Equipment storage shed for the Moorhen Marsh Western Pond
Turtle Study – summer 2016. Photo by Kelly Davidson.*



MT. VIEW SANITARY DISTRICT

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July 12th, 2016

Ms. Maureen Parkes
Contra Costa County Fish & Wildlife Committee
30 Muir Road
Martinez, CA 94553
Email: maureen.parkes@dcd.cccounty.us

RE: Final Report for MVSD's 2015 proposal: "Wetlands Field Trip Program for Contra Costa County Schools"

Dear Ms. Parkes,

Please consider this letter and all attachments, along with our sincere appreciation for the Contra Costa Fish and Wildlife Committee's (FWC) generous support, Mt. View Sanitary District's (MVSD) Final Report on the grant proposal project titled: **Wetlands Field Trip Program for Contra Costa County Schools**. As promised, the \$9,625 award went to fund field trips for participating schools within Contra Costa County, but outside of MVSD's Martinez service area.

A breakdown on the non-Martinez Contra Costa County schools served during the 2015-2016 school year is included as an attachment to this letter. In summary, MVSD paid \$13,310 to provide 33 field trips to 35 non-Martinez Contra Costa County elementary school classes in Contra Costa County. The FWC's \$9,625 grant contribution provided a little over 72% of the needed funding for these field trips. Please keep in mind that these figures do not include any of the 12 Martinez school classes or the three Alameda County school classes that also participated in the Wetlands Field Trip program in 2015-2016.

MVSD believes that stewardship of fish, wildlife, and habitat resources starts with a basic understanding and appreciation of the natural world. When this appreciation begins in childhood, it is much more likely to take root and flourish, especially if the child is exposed to multiple and ongoing environmental education opportunities. Thanks to the FWC, and our other outside funding partners, the participating elementary school students of Contra Costa County experienced at least one such outdoor education opportunity this past school year. Through your generous support of our education program, MVSD's Wetlands Field Trip program benefited the fish and wildlife of Contra Costa County by increasing awareness, appreciation, and a better understanding of the functions and values of wetland habitats and the fish and wildlife they support.

I am pleased to tell you that the 2015-2016 school year marks the 20th anniversary of the Wetlands Field trip program in Contra Costa County! MVSD and our partners at the Lindsay Wildlife Experience, are especially grateful for the FWC's ongoing support of this award-winning outdoor educational experience.

Sincerely,

Kelly Davidson
District Biologist



Elementary school students participating in the dip-netting activity during the Wetlands Field Trip Program – fall 2015. Photo by Kelly Davidson



MT. VIEW SANITARY DISTRICT

3800 ARTHUR ROAD
P.O. BOX 2757
MARTINEZ, CA 94553

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Elementary school students participating in the wetlands hike and bird watching activity during the Wetlands Field Trip Program – winter 2016. Photo by Kelly Davidson



Elementary school students participating in the animal adaptations activity during the Wetlands Field Trip Program – winter 2016. Photo by Kelly Davidson.



Elementary school students participating in the dip-netting activity during the Wetlands Field Trip Program – spring 2016. Photo by Kelly Davidson.

| | A | B | C | D | E | F | G |
|----|---|--------------|---------------------------------|--------------------|---|-------------------|-------------|
| 1 | Mt. View Sanitary District - Wetlands Field Trip Program 2015-2016 | | | | | | |
| 2 | | | | | | | |
| 3 | DATE | TIME | SCHOOL | GRADE and # | ADDRESS | # STUDENTS | COST |
| 4 | 1-Oct | 9:00 - 1:00 | Gregory Gardens Elementary | 3rd = 31 (3) | 1 Corritone Court, Pleasant Hill, CA 94523 | 29 | \$550.00 |
| 5 | 2-Oct | 9:00 - 1:00 | Gregory Gardens Elementary | 3rd = 31 (3) | 1 Corritone Court, Pleasant Hill, CA 94523 | 26 | \$550.00 |
| 6 | 8-Oct | 9:00 - 1:00 | Valhalla | 3rd = 26 (3) | 530 Kiki Drive Pleasant Hill, 94523 | 23 | \$440.00 |
| 7 | 9-Oct | 9:00 - 1:00 | Valhalla | 3rd = 26 (3) | 530 Kiki Drive Pleasant Hill, 94523 | 23 | \$385.00 |
| 8 | 22-Oct | 9:00 - 1:00 | Valhalla | 3rd = 32 (3) | 530 Kiki Drive Pleasant Hill, 94523 | 19 | \$440.00 |
| 9 | 23-Oct | 9:00 - 1:00 | Valhalla | 3rd = 26 (3) | 530 Kiki Drive Pleasant Hill, 94523 | 29 | \$440.00 |
| 10 | 28-Oct | 9:00 - 1:00 | The Seven Hills School | 4th = 36 | 975 N. San Carlos Dr., Walnut Creek, CA 94598 | 35 | \$440.00 |
| 11 | 29-Oct | 9:00 - 1:00 | Wagner Ranch | 2 x 3rd = 34 | 350 Camino Pablo, Orinda, CA 94563-1602 | 35 | \$385.00 |
| 12 | 4-Nov | 8:25 - 12:10 | Walnut Acres Elementary School | 3rd = 28 (3) | 180 Cerezo Drive, Walnut Creek, CA 94598 | 27 | \$385.00 |
| 13 | 5-Nov | 9:00 - 1:00 | Walnut Acres Elementary School | 3rd = 28 (3) | 180 Cerezo Drive, Walnut Creek, CA 94598 | 28 | \$385.00 |
| 14 | 6-Nov | 9:00 - 1:00 | Walnut Acres Elementary School | 3rd = 40 (3) | 180 Cerezo Drive, Walnut Creek, CA 94598 | 40 | \$440.00 |
| 15 | 12-Nov | 9:00 - 1:00 | Wagner Ranch | 2 x 3rd = 34 | 350 Camino Pablo, Orinda, CA 94563-1602 | 34 | \$385.00 |
| 16 | 11-Feb | 9:30-1:30 | St. Perpetua School | 5th = 30 | 3445 Hamlin Rd, Lafayette CA 94549 | 29 | \$385.00 |
| 17 | 18-Mar | 10:00 - 2:00 | Buena Vista | 3rd = 30 | 2355 San Juan Ave., Walnut Creek 94597 | 19 | \$385.00 |
| 18 | 23-Mar | 9:15 - 1:15 | Indian Valley | 5th = 28 | 551 Marshall Drive, WC, CA 94598 | 25 | \$385.00 |
| 19 | 24-Mar | 9:00 - 1:00 | Buena Vista | 3rd = 30 | 2355 San Juan Ave., Walnut Creek 94597 | 18 | \$385.00 |
| 20 | 30-Mar | 9:15 - 1:15 | Indian Valley | 5th = 28 | 551 Marshall Drive, WC, CA 94598 | 31 | \$385.00 |
| 21 | 31-Mar | 9:00 - 1:00 | Buena Vista | 3rd = 30 | 2355 San Juan Ave., Walnut Creek 94597 | 22 | \$385.00 |
| 22 | 1-Apr | 9:00 - 1:00 | Buena Vista | 3rd = 30 | 2355 San Juan Ave., Walnut Creek 94597 | 20 | \$385.00 |
| 23 | 21-Apr | 9:00 - 1:00 | Monte Gardens | 5th = 34 (4) | 3841 Larkspur Drive, Concord, CA 94519 | 30 | \$385.00 |
| 24 | 22-Apr | 9:00 - 1:00 | Monte Gardens | 5th = 34 (4) | 3841 Larkspur Drive, Concord, CA 94519 | 31 | \$385.00 |
| 25 | 29-Apr | 9:00 - 1:00 | Monte Gardens | 5th = 34 (4) | 3841 Larkspur Drive, Concord, CA 94519 | 33 | \$385.00 |
| 26 | 4-May | 9:00 - 1:00 | Parkmead Elementary | 3rd = 25 (3) | 1920 Magnolia Way, Walnut Creek 94595 | 20 | \$385.00 |
| 27 | 5-May | 9:00 - 1:00 | Parkmead Elementary | 3rd = 25 (3) | 1920 Magnolia Way, Walnut Creek 94595 | 19 | \$385.00 |
| 28 | 6-May | 9:00 - 1:00 | Parkmead Elementary | 3rd = 25 (3) | 1920 Magnolia Way, Walnut Creek 94595 | 20 | \$385.00 |
| 29 | 12-May | 8:45 - 12:45 | Pleasant Hill Elementary School | 3rd = 31 (3) | 2097 Oak Park Blvd. Pleasant Hill, CA 94523 | 26 | \$385.00 |
| 30 | 13-May | 8:45 - 12:45 | Pleasant Hill Elementary School | 3rd = 31 (3) | 2097 Oak Park Blvd. Pleasant Hill, CA 94523 | 23 | \$385.00 |
| 31 | 18-May | 8:45 - 12:45 | Pleasant Hill Elementary School | 3rd = 31 (3) | 2097 Oak Park Blvd. Pleasant Hill, CA 94523 | 27 | \$385.00 |
| 32 | | | | | | | \$11,385.00 |

| | A | B | C | D | E | F | G |
|----|---|--------------|---------------------------------|--------------------|---|-------------------|--------------------|
| 33 | | | | | | | |
| 34 | Mt. View Sanitary District - Wetlands Field Trip Program 2015-2016 | | | | | | |
| 35 | | | | | | | |
| 36 | DATE | TIME | SCHOOL | GRADE and # | ADDRESS | # STUDENTS | COST |
| 37 | 19-May | 8:45 - 12:45 | Pleasant Hill Elementary School | 3rd/4th = 31 (3) | 2097 Oak Park Blvd. Pleasant Hill, CA 94523 | 24 | \$385.00 |
| 38 | 20-May | 8:45 - 12:45 | Pleasant Hill Elementary School | 3rd = 31 (3) | 2097 Oak Park Blvd. Pleasant Hill, CA 94523 | 29 | \$385.00 |
| 39 | 25-May | 9:15 - 1:15 | Lafayette Elementary | 4th = 29 (3) AS | 950 Moraga Road, Lafayette, CA 94549 | 29 | \$385.00 |
| 40 | 26-May | 9:15 - 1:15 | Lafayette Elementary | 4th = 29 (3) AS | 950 Moraga Road, Lafayette, CA 94549 | 28 | \$385.00 |
| 41 | 27-May | 9:15 - 1:15 | Lafayette Elementary | 4th = 29 (3) AS | 950 Moraga Road, Lafayette, CA 94549 | 26 | \$385.00 |
| 42 | | | | | | | \$1,925.00 |
| 43 | | | | | | | |
| 44 | | | | | TOTAL COST OF NON-MARTINEZ CC SCOOOL TRIPS | | \$13,310.00 |
| 45 | | | | | | | |
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Lindsay
Wildlife
Experience

Agenda Item #10

CONTRA COSTA

2016 JUN 13 P 1:58

DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

June 6, 2016

Maureen Parkes
Contra Costa County Fish & Wildlife Committee
Department of Conservation & Development
30 Muir Rd
Martinez, CA 94553

Dear Ms. Parkes,

Thank you on behalf of everyone here at Lindsay Wildlife Experience, I would like to extend my most sincere gratitude to the committee for its generous pledge of \$7,567.51 to Lindsay Wildlife for the purchase of a gas sterilizer on behalf of the wildlife rehabilitation hospital. We could not be more grateful for the committee's partnership in our efforts.

This contribution furthers Lindsay's mission to connect people with wildlife to inspire responsibility and respect for the world we share. Thousands of schoolchildren come to Lindsay to explore our exhibit halls and benefit from our education programs. Adult visitors return to Lindsay after many years and recount their experiences—meeting a rabbit in our pet-education program, bringing in an injured raven for treatment, or going eye-to-eye with an owl—that serve as lasting memories. These experiences—ones that you help create—create a large community of individuals who possess a lasting compassion and appreciation for the natural world.

I truly appreciate the committee's ongoing support of Lindsay and of the animals.

Sincerely,



Cheryl M. McCormick, Ph.D.
Executive Director

Lindsay Wildlife Experience is a 501(c)(3) organization (Federal Tax ID #94-6104179).

— Thank you, Maureen, to
you and your Committee colleagues,
for your consideration. Our
hospital will be even more
successful with the gas
sterilizer. I hope to meet
you soon.
— CM



CONTRA COSTA

2016 JUN 28 P 4: 55

DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

June 22, 2016

Maureen Parkes
Contra Costa County Fish and Wildlife Committee
Conservation & Development
30 Muir Rd
Martinez, CA 94553

Dear Ms. Parkes,

Thank you on behalf of everyone here at Lindsay Wildlife Experience. Thank you for your generous gift of \$6,059.22 to Lindsay Wildlife Experience for the purchase reimbursement for a dish sterilizer. This gift enables us to continue our work to protect wildlife and the habitat upon which they depend. This support also ensures our ability to provide quality programs for children and adults alike to show them how they can enjoy the natural world to the fullest.

This gift helps further Lindsay's mission to connect people with wildlife to inspire responsibility and respect for the world we share. So often, visitors return to Lindsay after decades and recount their own experiences—bringing in an injured raccoon for treatment, meeting a rabbit in our pet-education program or going eye-to-eye with an owl—that have served as lasting memories. These experiences create more compassionate people and foster a life-long appreciation for the natural world.

Thank you and the Fish and Wildlife Committee for partnering with us to create a better world for wildlife and people.

Sincerely,

Cheryl M. McCormick, Ph.D.
Executive Director

—Thank you so much,
Maureen! I Hope to
meet you in person soon.
—CM

No goods or services were received in connection with this donation. Your gift of \$6,059.22 made by Business Check #G595513 on 5/31/2016, is fully tax deductible. Lindsay Wildlife Experience is a 501(c)(3) nonprofit organization (Federal Tax ID #94-6104179).

Contra Costa County Fish and Wildlife Committee Meeting

~ 16th Annual Fish and Wildlife Fall Forum in Contra Costa County ~

Date: Thursday, September 22, 2016
 Time: 5 p.m. to 7 p.m.
 Location: Martinez Sportsmen's Club, 304 Embarcadero Street, Martinez, CA 94553

If you plan to attend, please RSVP by September 16 to Maureen Parkes at (925) 674-7831 or maureen.parkes@dcd.cccounty.us. Please indicate your preference for baby back ribs, chicken or a vegetarian/vegan option.

(Please see reverse for detailed map and directions)

AGENDA

- 5:00 Reception/sign-in/refreshments**
- 5:30 Welcome and overview** (Danny Pellegrini, Chair, Fish and Wildlife Committee)
- 6:00 Fish and Wildlife Outreach** *(to be determined)*
 - The purpose of the Fall Forum
 - Acknowledgement of the relationships created by Judicial process
 - Summary of the Fish and Wildlife Committee's interest in the Fish and Game Codes
 - Opportunities to improve coordination
 - Recognition of the work of conservation partners who have previously received grants from the Fish and Wildlife Propagation Fund.
- 6:10 Presentation on the Lower Walnut Creek Historical Ecology Study** (Scott Dusterhoff, Senior Scientist & Lead Geomorphologist, San Francisco Estuary Institute)
- Complementary rib/chicken/vegan dinner courtesy of Fish and Wildlife Committee chefs----*
- 6:30 Comments/questions/suggestions (including public comment)**
- 6:45 Dessert and open discussion/mixer**
- 7:00 Adjourn**

Times are approximate. Please contact Maureen Parkes at 925-674-7831 / maureen.parkes@dcd.cccounty.us at the CCC Department of Conservation and Development if you have questions about the Fish & Wildlife Committee or desire materials related to this agenda. The FWC will provide reasonable accommodation for persons with disabilities planning to participate in this meeting who contact staff at least 72 hours before the meeting.

Turn left onto Embarcadero Street (dirt road)

Turn left onto Embarcadero Street (dirt road)

Turn left onto Embarcadero Street (dirt road)

Turn left onto Embarcadero Street (dirt road)

Advisory Body Name: Contra Costa County Fish and Wildlife Committee

Advisory Body Meeting Time/Location: 3rd Wednesday of every month, 3 – 5 pm

2475 Waterbird Way County Public Works Department Road Maintenance Division lunch room

Chair: Daniel Pellegrini

Staff: Maureen Parkes and Abigail Fateman

Reporting Period: January 2016 – December 2016

1. Activities and Accomplishments: The Fish and Wildlife Committee (FWC) met monthly to discuss matters related to fish and wildlife issues in Contra Costa County (CCC). The Committee is responsible for running a grant program that expends the Fish and Wildlife Propagation Funds (funds that are collected by the CA Department of Fish and Wildlife for code violations). The Committee also hosts an annual Fall Forum to raise awareness among people working in law enforcement, environmental restoration, education and outreach about fish and wildlife issues.

Grant Program: The Committee received 16 proposals requesting Fish and Wildlife Propagation Fund grant funds during the regular grant cycle. The Committee reviewed the proposals, interviewed applicants and selected 6 of the 16 proposals for full or partial funding totaling \$22,449.51 to recommend to the Board of Supervisors. Grants ranged from \$975 to \$ 7,567.51 each. The Committee reviewed progress and final reports from previous grant cycles and extended invitations to grantees to give presentations.

Outreach: The Committee hosted the annual Fall Forum on September 22nd, which is open to the public and encourages people involved in fish and wildlife law enforcement issues in CCC to attend. Invited attendees included representatives of the California Department of Fish and Wildlife, Sheriff's Department, District Attorney's Office, Superior Court, Public Defender's Office, the East Bay Regional Park District Police, the Board of Supervisors and members of the public. Participants have indicated that the Fall Forums have been helpful in raising awareness and fostering cooperation on fish and wildlife issues and law enforcement. Approximately _____ people attended the event.

Volunteer Activities: Several members volunteer in the community with other organizations that are interested in fish and wildlife issues. Martha Berthelsen - Steering Committee for SPAWNERS; Rhonda Gehlke - Delta Protection Commission's Leadership Committee, Aquarium in the Classroom Program and Director of the Delta Science Center; Susan Heckly - Lindsay Wildlife Museum, CCC Master Gardener, International Wildlife Rehabilitation Council and the FWC representative on the CCC Integrated Pest Management Advisory Committee; Kathleen Jennings - Co-chair of the Peyton Slough Wetlands Advisory Committee; Danny Pellegrini - Contra Costa Mosquito and Vector Control District Board of Trustees, East Bay Regional Park District Park Advisory Committee, Sheriff's Posse of CCC (Barbeque Captain) and the Martinez Sportsmens Club.

Brochure: The Committee finalized the "Wildlife in Your Backyard" brochure.

Committee members were regularly updated on activities related to fish and wildlife in CCC which included ~~4~~ _____ presentations and updates by guest speakers and grant recipients, as well as a field trip.

The presentations, updates and field trip are listed below:

- Update on the Alternative 4A (California Waterfix). (Ryan Hernandez, Department of Conservation and Development)
- Update from the East Contra Costa County Habitat Conservancy on acquisition and restoration projects. (Abigail Fateman, ECCCHC/NCCS)
- Presentation on weeds and invasive plants in Contra Costa County. (Bob Case, California Invasive Plant Council)
- Presentation on the "Bees of Brentwood" project. (Dr. Gordon Frankie, University of California, Berkeley)

Scheduled and Possible Upcoming Presentations/Updates and Field Trip:

- Presentation - Animal Services Department (Lieutenant Jane Andreotti, Animal Services Department) - August
- Presentation - River Otter Ecology Project (Megan Isadore, River Otter Ecology Project) – August
- Presentation at the Fall Forum "Presentation on the Lower Walnut Creek Historical Ecology Study (Scott Dusterhoff, San Francisco Estuary Institute) - September
- Field trip to Ruth Bancroft Garden in Walnut Creek - October
- Update on the activities of the CCC Integrated Pest Management Advisory Committee (Tanya Drlik, Contra Costa Health Services Department) - November
- Update on the Chelsea Wetlands project - pending availability
- Update on the Pinole Creek Fish Passage Project – pending availability

2. Attendance/Representation The FWC is composed of ten members. Each Supervisor appoints a member and the Internal Operations Committee appoints four At-large members and one At-large alternate. The Committee meets monthly. The FWC met _____ times at which a quorum was always present. The members were: Martha Berthelsen (D-I), Susan Heckly (D-II), Clark Dawson (D-III), Brett Morris (D-IV), Daniel Pellegrini (D-V), Rhonda Gehlke (At-Large), Kathleen Jennings (At-Large), Jeff Skinner (At-Large), Scott Stephan (At-Large) and Derek Jansen (At-Large Alternate).

3. Training/Certification At monthly meetings Committee members were regularly updated on activities related to fish and wildlife in CCC and had _____ presentations/updates and one field trip (see Activities/Accomplishments). All members have viewed the required videos "The Brown Act and Better Government Ordinance – What You Need to Know as a Commission, Board or Committee Member" and "Ethics Orientation for County Officials." Certifications are on file for all of the members.

4. Proposed Work Plan/Objectives for Next Year**(1) FWC Operations:**

- Develop and refine Work Plan (working document).
- Maintain FWC membership by advertising vacancies and forwarding applications to the Internal Operations Committee.
- Seek to coordinate with other Fish and Wildlife Committees on regional matters.
- Coordinate with the Contra Costa Watershed Forum.

(2) Make recommendations to the Board of Supervisors via the Internal Operations Committee for the appropriation of funds from the Fish and Wildlife Propagation Fund to support fish and wildlife projects in the community:

- Conduct grant program to solicit proposals, evaluate their relative merits, and recommend funding for projects which will contribute most to the fish and wildlife resources of the County.
- Develop and advertise FWC grant program by: 1) Reviewing past Request for Proposals (RFP), funding applications; and 2) Developing new RFP, funding application deadline, and funding priorities; and 3) posting to the County website, distributing these materials to the media, the FWC mailing list and RFP mailing list, and to anyone who requests them.
- Work with agencies, organizations, and individuals to help them plan and develop projects suitable for support from the Fish and Wildlife Propagation Fund.
- Monitor the efficiency and effectiveness of the grant disbursement process.
- Review funding applications received. Make recommendations to the Board of Supervisors via the Internal Operations Committee for the awarding of grants.
- Follow-up on projects that receive funding to assure that projects proceed as proposed. One way the FWC will do this is to extend invitations to prior Fish and Wildlife Propagation Fund Grant recipients to future meetings to give status reports, outcomes and presentations regarding their projects.
- Send out a letter to grant recipients requesting project status reports.

(3) FWC priorities for 2016:

- Make recommendations to the Board to approve Fish and Wildlife Propagation Fund grant applications for projects that increase collaboration with law enforcement agencies, the court, and community cultural organizations on enforcement issues and increase education focusing on communities that may be unaware of local fish and game laws.
- Provide public forum opportunities for open discussion on wildlife issues that affect CCC residents and impact natural resources in our County, increase outreach efforts and provide advisory updates to Board of Supervisors as needed.
- Develop and disseminate “Wildlife in Your Backyard” booklet and other projects for involvement of the FWC and the community in CCC.

(4) FWC projects (develop and prioritize a list of projects for potential FWC involvement; select projects for FWC involvement and provided appropriate support, including: initiation, planning, consultation, and/or funding):

- Make recommendations to the Board on awarding Certificates of Appreciation for significant contributions to the fish and wildlife resources of the County.
- Consider hosting a Wildlife Forum.

(5) Improve enforcement of fish and game laws and regulations; increase flow of money into the Fish and Wildlife Propagation Fund:

- Review status reports on Fish and Game Code enforcement in the County. Consider advising the Board on trends.
- Help assure that, when appropriate, a portion of fines from violations of laws designed to protect fish and wildlife resources is deposited in the Fish and Wildlife Propagation Fund. Promote awareness of the harm caused by violation of fish and wildlife regulations and the value of enforcement.
- Host a Fall Forum with law enforcement officials (CA Dept. of Fish and Wildlife, Sheriff’s Dept., District Attorney’s Office, Superior Court, Public Defender’s Office, the East Bay Regional Park District Police) to discuss fish and wildlife issues and enforcement.

(6) Monitor and advise the Board on projects that may affect fish and wildlife resources in the county:

- Attend field trips to see major restoration projects and prior Fish and Wildlife Propagation Fund Grant recipients’ projects in the County.
- Consider tours of East CCC Habitat Conservancy properties, Marsh Creek Fish Ladder, Walnut Creek Drop Structure, Dow Wetlands and Chelsea Wetlands at Pinole.

(7) Develop policy recommendations (“white papers”) on fish and wildlife issues:

- Update FWC’s “Wildlife in Your Backyard” pamphlet.
- Discuss impacts of invasive species.
- Discuss wildlife and human interaction / interface.
- Discuss public education on reducing the impact of cats on wildlife.
- Discuss the Bay Delta Conservation Plan and proposal for water conveyance tunnels under the Delta.